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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,919	01/25/2002	Johan Knevels	926-62US (P09914US)	3749

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EXAMINER

TUNG, TA HSUNG

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 07/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,919

Applicant(s)

KNEVELS

BTAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No 5

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-16 is/are pending in the application.
- ☐ Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-16 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
 - ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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Claims 7, 12-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7, "is porous" appears to be redundant with "gas-permeable" at the last line of parent claim 1. If the closure is gas-permeable, it would presumably have to be porous.

Claim 12, lines 1-2, it is unclear which element is the "central bushing". At first blush, the "bushing" would appear to be element 13 of figure 1. However, claim 13, line 2 calls for the "bushing" to be arranged in element 13. This wording would suggest that the "bushing" is not the same as element 13. If so, what then is the "bushing"?

Claim 16, line 1, "the openings" do not have antecedent basis. This claim depends upon claim 1 by way of claims 15, 14 and 12. None of these claims recites "openings".

Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure regarding the steel tube 2 is inadequate. The steel tube appears to be a non-porous tube that completely surrounds the solid electrolyte element 1. It is unclear if this tube is intended to be an electrode for contacting a sample melt. If so, the steel tube would be in place during the usage of the probe. In that case, how would the sample reach or "see" the solid electrolyte? If the steel tube is intended to be a protective shield for the solid electrolyte to guard

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against thermal shock that melts away upon insertion of the probe into a sample, where is the disclosure of that?

Applicant is cautioned that this rejection may not be overcome by the introduction of new matter. Subject matter that may be obvious from, but is not disclosed by, the original disclosure is still new matter.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3021949 in view of French 2122758, Fitterer 3,752,753 or VonKrusenstierna et al (hereafter VK) 4,105,507.

DE discloses a probe supported at one end of a carrier tube 1 for use in a melt. The probe comprises a solid electrolyte tube 3 that is surrounded by a metal tube 8 and contains a reference material 4 and a filler 5. An electrode conductor rod 6 extends from the reference material outwardly of the tube through a cap 7 that encloses its upper end. See figures 1 and 2; page 7, line 4 to page 8, line 10. It is not totally clear if tube 8 is made of steel. However, applicant at page 1, lines 9-16 of the specification appears to suggest that tube 8 is a steel tube. Applicant's claims, then, differ by calling for the enclosure cap to be gas permeable.

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French discloses a probe for use in melts comprising a tube having an enclosure cap 3 with an opening 13 for venting gas pressure build-up from within the tube. See figure 1; page 2, line 25.

Fitterer discloses a probe for use in melts comprising a tube with an enclosure cap 182 that is porous to vent pressure build-up in the tube. See figure 7; col. 13, line 75.

VK discloses a probe for use in melts comprising a tube with a stopper that has an opening 19 for equalizing pressures inside and outside of the tube. See figure 3; col. 2, line 21.

It would have been obvious for DE to adopt an opening in cap 7 in view of the secondary references so as to provide a vent for the solid electrolyte tube. Otherwise, pressure build-up within the electrolyte tube can cause an explosion.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '949 in view of French '758, Fitterer or VK and Krasberg 3,410,778, Aston et al 5,395,507 and/or Marovich et al 3,655,546.

These claims further differ by calling for the cap to have a plurality of openings.

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Krasberg discloses a probe with a gas permeable member 104 having a plurality of gas openings. See figure 2; col. 4, line 61.

Aston discloses a probe with a gas permeable member 14 with a plurality of gas openings 15. See figure 1; col. 3, line 35.

Marovich discloses a probe with a gas permable member 40 with a plurality of gas openings 74. See figure 3; col. 4, line 25.

It would have been obvious for DE to adopt a plurality of openings instead of one opening, because pluralizing is within the ordinary skill of the art. One advantage of plural openings is the less likelihood of blockage.

In regard to claim 3, the size of the opening is a matter of design choice absent criticality or unexpected result. There is no evidence of either in the instant case.

In regard to claims 8 and 9, note that the openings 74 in Marovich are distributed radially around an axis of the probe. Such an arrangement tends to give an even distribution of the gas.

Claims 4, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '949 in view of French '758, Fitterer et al or VK and Kato et al 4,390,406.

Claim 4 further differs by calling for the the cap to be made of plastic. Claims 12-15 further differ by calling for the cap to have a planar shoulder portion and a conical portion.

Kato discloses a probe with an enclosure cap that has a planar shoulder portion and a conical portion, and is made of plastic. See figures 1 and 2; col. 3, line 15-50 and col. 5, line 2. It

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would have been obvious for DE to adopt the cap of Kato, since such a cap would provide more sealing surface and thus a better seal for the electrode rod 6.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE '949 in view of French '758, Fitterer et al or VK and Kato et al and Krasberg, Aston et al and/or Marovich et al.

This claim further differs by calling for the cap to have a plurality of openings. As discussed before, plural openings are rendered obvious by Krasberg, Aston and/or Marovich.

Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE '949 in view of French '758, Fitterer et al or VK and Kato et al and Shaw et al 3,755,125 or Horner et al 3,959,107.

These claims further differ by calling for the cap to be made of a polyolefin such as polypropylene.

Shaw discloses propylene to be a well-known construction material for a probe component. See col. 3, line 5.

Horner discloses an enclosure cap 44 in the form of a heat-shrinkable sleeve. See figure 1; col. 6, lines 53-55. Heat-shrinkable sleeves are often made of a polyolefin.

It would have been obvious for DE to make cap 7 of polypropylene in view of Shaw or Horner, since polypropylene is an inert, inexpensive, readily available material that can be easily applied as a shrink tube to effect a good seal.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE '949 in view of French '758, Fitterer et al or VK and Moll et al 4,425,918 or Hans-Jurgen et al 4,400,258.

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This claim further differs by calling for the cap to be fixed to the probe tube by a latching device.

Moll discloses a latch 10-7 for attaching a cap 1 to a housing 2. See figure 1; col. 5, line 37.

Hans-Jurgen discloses a latch for connecting elements 2 and 3, as well as a latch for connecting elements 3 and 13 at 18. See figure 2; col. 3, line 38 to col. 4, line 9.

It would have been obvious for DE to adopt a latch for affixing cap 7 to the probe tube in view of Moll or Hans-Jurgen, since a latch is a good connector with a simplified structure.

Faurschou et al 3,809,639 discloses a carrier tube 12 for a solid electrolyte probe. See figure 1.

The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC is 703-872-9310.



Ta Tung

Primary Examiner

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